

# **The Effect of Targets' Organizational Capital on Acquirers' Abnormal Returns**

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## **ABSTRACT**

Literature has shown that organizational capital is an important production factor and is positively related to firm value, Tobin's Q, stock returns and executive compensation. We examine whether this organizational capital functions well in another firm in a merger. Results show that acquirers experience higher announcement abnormal returns when the targets have higher organizational capital and this effect strengthens in non-diversifying acquisitions and when acquirers have better corporate governance.

**Keywords:** acquisitions, organizational capital, SG&A, diversifying acquisition, corporate governance

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## **1. Introduction**

Organizational capital, a kind of intangible capital, has been drawing more researchers' attention in recent years. It was first defined by Prescott & Visscher (1980) as an information asset, for instance, personnel information, team information and firm-specific human capital, which affects companies' production possibility set. Organizational capital matters because working efficiency of a worker on a particular job depends on whether the worker matches the job and is also related to the attitude of the worker towards the teammates. Lev (2001) groups intangible capital into four categories, which include discovery/learning intangibles, customer-related intangibles, human-resource intangibles and organizational capital. Then Lev and Radhakrishnan (2005) and Lev, Radhakrishnan and Zhang (2009) further define organizational capital as "the agglomeration of business processes and systems, as well as a unique corporate culture, that enables them to convert factors of production into output more efficiently". Most common examples of organizational capital are the unique business models owned by firms. For instance, Walmart supply chain system allows the suppliers to know which goods are bought by customers when the goods are checked out at the store counters, which makes it a lot more efficient for inventory management. Even being familiar with firm's computer system or knowing whom to ask when problems arise are also considered as part of the organizational capital, because it helps the company to function more efficiently. One more anecdotal example is: Facebook CEO Mark Zuckerberg does not have his own private office. He is more approachable by sharing the same office with his co-workers. This obviously promotes communications and creates an easier and more relaxing working atmosphere, thus improving efficiency. So in one sentence, organizational capital is all the knowledge, information, conventions used to "combine human skills and physical capital into systems for producing and delivering want-satisfying products" (Westphal (1995, p.2237)).

Literature divides into two groups in terms of whether organization capital is embodied in workers and in their match with different tasks, or embodied in the organization itself, which means "organizational capital is a firm-specific capital good jointly produced with output" (Atkeson and Kehoe 2002). For the former view, Jovanovic (1979), Prescott and Visscher (1980), Becker (1993), Jovanovic and Moffit (1990) and Topel (1991) have developed explicit microeconomic models and measured different aspects of this firm-specific human capital. For the latter statement, Arrow (1962), Rosen (1972) and Ericson and Pakes (1995) view organizational capital as acquired by endogenous learning-by-doing. In this present study, we follow Eisfeldt and Papanikolaou (2013)

who propose that organizational capital is partly embodied in employees (key talents) and partly firm specific, because key talents (executives, experts, white collars, etc.) are the people to design, carry out and implement the special processes and systems.

The crucial difference between organizational capital and physical capital is that the productivity and output claiming of organizational capital are highly related with key talents. Since organizational capital is embodied within key employees, both key employees and shareholders have a claim on the cash flows created from it, which is different with physical capital (all cash flows go to shareholders). Thus the benefit from organizational capital to shareholders is somehow dependent on the division of gains from organizational capital between shareholders and key employees, which adds more risk to shareholders. At the same time, firms are facing a loss of key talents (losing organizational capital). From the two aspects above, organizational capital is riskier than physical capital to shareholders. Another characteristic of organizational capital is that its efficiency is partly firm specific, because the skills and training obtained from one firm might be useful but not necessarily useful to another firm. Even if it's useful to another firm, it's productivity in a new firm depends on how the key talents perform in the new firm with the new environment.

As for the comparison between human capital and organizational capital, they are similar in that they are both intangible, employee related and hard to measure. And from theory, human capital is the part of knowledge, skills and know-how people acquire either from education or from job training, which is applicable to any work and company, while organizational capital is the part of "human capital" (embodied in employees) which is firm specific and matters to organizational relationships, thus it might not work in other firms. However, in practice, human capital and organizational capital can be barely separated and measured.

Jovanovic and Rousseau (2002) propose a model to explain the physical capital reallocation through acquisitions, when there is a technology shock, based on which, Faria (2008) develops an equilibrium model in which bidders acquire targets in order to get their organizational capital, when organizational capital is attained cheaper from externally. On the other hand, when the long run benefit of organizational capital is lower than the benefit from selling it, firms would like to be acquired.

Based on the discussion above, we may wonder whether acquirers can benefit from targets' high organizational capital. We propose our research question, does organizational capital have an effect



on the acquirers' abnormal returns in a merger and acquisition? Although Li, Qiu and Shen (2016) find that acquirers with higher organizational capital experience higher post-merger abnormal returns, whether targets' organizational capital stock has an effect on acquirers' returns is still questionable from the literature. On the one hand, organizational capital is a key production factor, and it's potentially transferrable through the moving of key talents or acquisition, thus the acquirers might benefit from targets' organizational capital. On the other hand, as argued in Lev and Radhakrishnan (2005), "organizational capital is predominately tacit and difficult to transfer across firms, and hence of questionable value in acquisitions". The literature fails to answer the question whether organizational capital is transferrable among firms and thus also fails to provide a definite direction on organizational capital's effect on M&A returns, this is an empirical question. Accordingly, we ask: does targets' organizational capital affect acquirers' announcement abnormal returns? If yes, what is the direction of such effect? What factors influence the functioning of organizational capital in the new firm?

This paper makes two contributions to the literature. First, it finds another important factor to explain acquirers' announcement abnormal returns. Second, it offers a more definitive answer to the questions: whether firms can buy organizational capital (whether organizational capital is transferrable). Then we investigate which factors affect the utilization of organizational capital in another firm. The results show that targets' organizational capital's positive effect on acquirers' announcement returns strengthens when the two parties are from the same industry and when the acquirers have better corporate governance.

The rest of the paper will be organized as follows. Section 2 presents the literature and our hypotheses. Section 3 illustrates our sample construction, testing model and variable selections. We present our empirical results and robustness tests in Section 4. Later on, we examine whether diversification and corporate governance matter in the utilizing of targets' organizational capital in Section 5 and 6. Conclusions are presented in Section 7.

## **2. Literature Review and Hypotheses Development**

### **2.1. Literature Review**

There is a growing interest in the function of intellectual capital, and many papers have investigated how organizational capital is related with firms' output and growth, firm valuation, CEO compensation, firm innovation and M&A returns.

#### **2.1.1 Organizational Capital and Output**

Atkeson & Kehoe (2005) build a quantitative model (based on industry evolution models) to estimate the growth of plant's life cycle and use it to measure the overall size of payments to plants owners. The result is that payments from organization capital are more than one-third of the payments from physical capital. Through the Cobb-Douglas production function model with inputs including physical, brand, labor, R&D and organizational capital, De and Dutta (2007) and Tronconi and Marzetti (2011) find that organizational capital and labor have the highest output elasticities and the output elasticity of organizational capital is higher for non-R&D firms.

#### **2.1.2. Organizational Capital and Equity Valuation and Stock Returns**

Lev and Radhakrishnan (2005) argue that because of its uniqueness, organizational capital is difficult to be copied by competitors, thus able to produce abnormal returns. They estimate organizational capital by cumulating SG&A and find that it contributes significantly to the explanation of firms' equity valuation (the contribution is larger and more significant than residual earning). Eisfeldt and Papanikolaou (2013) investigate the effect of organization capital on the cross-sectional expected returns. Their model shows that organizational capital makes firms riskier and raises discount rates by about 4.5 percent and that "firms with higher organizational capital are more productive, smaller, have higher Tobin's Q.

#### **2.1.3. Organizational Capital and CEO Compensation and Employee Turnover**

Based on the previous study, Lev, Radhakrishnan and Zhang (2009) further find that organizational capital is consistent with firms' operating performance and positively relates to CEO compensation. Lustig, Syverson and Van Nieuwerburgh (2011) investigate the division of the cash flow created by organizational capital, between managers and shareholders and find that organizational capital helps to explain the variability in CEO compensation. Carlin, Chowdhry and Garmaise (2012) take organization capital as a form of intrafirm language and that firms with higher organizational capital experience lower turnover, which implies that firms with high organizational capital are

more likely to promote senior managers from within the firm. Eisfeldt and Papanikolaou (2013) also find that firms with higher organizational capital have higher levels of executive compensation.

#### **2.1.4. Organizational Capital and M&As**

Li, Qiu and Shen (2016) find that acquirers with high organizational capital are more likely to acquire firms with high organizational capital and they experience higher post-merger abnormal returns, cut more on the cost of goods sold, achieve greater asset turnover and innovative efficiency. Faria (2008) proposes that a merger may arise when there is a gain to trade organizational capital (when the cost of external acquisition of organizational capital is lower than the cost of internally developing it). He uses a dynamic matching model to testify that mergers are an equilibrium outcome for acquirers to get access to targets' organizational capital. The closest paper to ours is Li, Qiu and Shen (2016), which is also interested in the effect of organizational capital in an acquisition, but more focused on acquirers' organizational capital. They find that acquirers with high organizational capital are more likely to acquire firms with high organizational capital and they experience higher post-merger abnormal returns.

#### **2.1.5. Others**

Evenson and Westphal (1995) state that organizational capital is related to firms' operating abilities, investing abilities and innovation abilities. Youndt, Subramaniam and Snell (2004) are interested in the relation of the three forms of intellectual capital. They propose that human, social capital and organizational capital are not completely independent and find that "only a small proportion of the firms which are superior performing have high levels of all the three types of intellectual capital and also a small proportion of the firms which are underperforming have very low levels of all the three intellectual forms and most of the firms are high in levels in only one subcategory". Liu, Mao and Tian (2016) investigate whether individuals' human capital or firms' organizational capital matter in terms of innovation. They find that human capital is much more important regarding patent counts and citations, while human capital and organizational capital are "about the same as important when explaining the firm's innovation styles in terms of patent exploratory and exploitive scores".

### **2.2. Hypotheses Development**

As defined in the introduction, organizational capital's tacitness and uniqueness make it hard to be mimicked by competitors, thus yielding abnormal returns. And its "partly embodied in key

employees” characteristic makes it possibly transferrable in a merger. So our first hypothesis is developed as following:

***H1: Acquirers’ announcement cumulative abnormal returns are positively related with targets’ organizational capital stock.***

The alternative hypothesis of hypothesis one is that the targets’ organizational capital has either no or even a negative effect on the bidder’s cumulative abnormal return, because of the risky nature of organizational capital. First, as argued in the introduction, the cash flow to shareholders from organizational capital depends on the division between shareholders and key talents, which exposes shareholders to more risks. Second, firms are always facing a loss of key employees, thus losing organizational capital. This risk depends on the key talents’ “outside option”. The risk of losing key talents increases when acquisitions happen, especially in a hostile takeover, in which the targets’ management team is more possible to be replaced. Third, acquirers may not able to utilize targets’ organizational capital very well, because of organizational capital’s firm specificness or the acquirers’ management. So the effect of organizational capital on acquirers’ abnormal returns is not certain in theory.

Because organizational capital is partly firm specific, we may wonder what factors help the acquirer make better use of it. If the acquirer and target are in the same industry, which means they have similar business, products, processes and operating systems, it would be easier and more possible for the acquirer to fully utilize the targets’ organizational capital. Our second hypothesis is:

***H2: Organizational capital’s positive effect on acquirers’ abnormal returns is more significant in non-diversifying acquisitions.***

As we have discussed, part of organizational capital’s riskiness comes from the uncertainty of the division of the output from it between shareholders and key talents. But what if the acquirers have a better or clearer way of dealing with the conflict? Core, Holthausen and Larcker (1999) document that firms with stronger corporate governance have less agency problems and the CEOs receive lower compensations. When the targets are taken by the acquirers, the acquirers’ good corporate governance helps address the agency problem created by organizational capital (cash flow division between key talents and shareholders), thus increasing stock returns.

On the other hand, Gompers, Ishii and Metrick (2003), Bebchuk, Cohen and Ferrell (2004), and Bebchuk and Cohen (2005) find that firms with better corporate governance (stronger shareholder rights) have higher firm value. Drobetz, Schillhofer and Zimmermann (2004) also document the positive relation between corporate governance and expected stock returns. It's reasonable to assume that a larger synergy will be created when firms are acquired by better corporate governance.

So we propose that organizational capital's positive effect will be strengthened by stronger corporate governance, by reducing agency problem.

***H3: Organizational capital's positive effect on acquirers' abnormal returns is more significant when acquirers have better corporate governance.***

### **3. Data Description**

#### **3.1. Data Selection**

We use merger and acquisitions announced between January 1984 to December 2013 available on Securities Data Corporation's (SDC) U.S. domestic database. We get 1654 acquisitions made by U.S. bidders of U.S. targets, which meet the following criteria:

- (1) The transaction is completed.
- (2) The bidder controls less than 50% of the targets' shares before the announcement and acquires 100% of the targets' shares after the transaction.
- (3) The deal value is greater than \$1 million.
- (4) The acquirer and target are public firms listed on the University of Chicago's Center for Research in Securities Prices (CRSP) and COMPUSTAT during the event window.
- (5) Deal value is more than 1% of acquirers' market value. The market value of the acquirer is defined as the sum of the market value of equity, long-term debt, debt in current liabilities, and the liquidating value of preferred stock.
- (6) Financial firms (primary SIC code between 6000 and 6999) are discarded.
- (7) Acquirers' post merger cumulative abnormal return (CAR) based on a window of 11 days surrounding announcement day is available on Wharton Research Data Services (WRDs) Event Study.
- (8) There is no missing values for key control variables used in the regression analysis.

Our sample selection criteria are similar to Moeller, Schlingemann and Stulz (2004), except that we get CAR from WRDs Event Study database.

#### **3.2. Dependent Variable**

Acquirers' announcement CARs are obtained from WRDs Event Study, which are estimated from market model.

$$AR = R - E(R) = R - (R_f + \alpha + \beta(R_m - R_f)) \quad (1)$$

Estimation window is from day -210 (210<sup>th</sup> day prior to announcement day) to day -11 (11<sup>th</sup> day prior to announcement day). Event window is (-5, +5). Minimum of value number of returns is 100. We denote this CAR as CAR11.

### 3.3. Test Variable

Targets' organizational capital is our key test variable. We follow the method of Eisfeldt and Papanikolaou (2013), measuring organizational capital by cumulating SG&A expenses using perpetual inventory method.

$$OC_t = (1 - \delta_o)OC_{t-1} + \frac{SGA_t}{CPI_t} \quad (2)$$

$$OC_0 = \frac{SGA_1}{g + \delta_o} \quad (3)$$

Whereas  $OC_t$  is the organizational capital in year  $t$ ,  $SGA_t$  is the SG&A expenses in year  $t$  and  $CPI_t$  is the consumer price index in year  $t$ .  $\delta_o$  is depreciation rate of SG&A, and  $g$  is growth rate of SG&A. Exactly following Eisfeldt & Papanikolaou (2013), we choose  $g$  as 10% and  $\delta_o$  as 15%. SG&A expenses data is from COMPUSTAT and OC is scaled by asset and adjusted for industry level (less median of firms in the same industry).

To address the concern that some of the SG&A expenses cannot be seen as organizational capital, Eisfeldt & Papanikolaou (2013) offers 4 validations to this method. They find empirical evidence of the effectiveness of this method from 10-K filings, managerial quality surveys, investment in information technology and Firm Profitability.

### 3.4. Firm and Deal Characteristics

We select our control variables base on Moeller, Schlingemann and Stulz (2004) and Masulis Wang and Xie (2007). Firm level characteristics include both acquirers' and targets' sizes, leverages, market to book value (mtob) and returns on assets (ROAs), all of which are measured at the end of firms' fiscal year prior to announcement date. Moeller, Schligemann and Stulz (2004) find that small acquirers have about two percentage points higher announcement returns, though Wright, Kroll and Elenkov (2002) find that acquisition returns increase in firm size. We use natural log of asset as proxy for firm size. Maloney, McCormick, and Mitchell (1993) find that acquirers with higher leverage have higher announcement returns, though Moeller, Schligemann and Stulz (2004)

don't show leverage effect on acquisition returns. We define leverage as long term debt plus debt in current liabilities divided by asset. Servaes (1991) finds that acquirers' return is positive related with acquirers' Tobin's q and negatively related with targets' Tobin's q while Lang, Stulz, and Walkling (1989) and Moeller, Schlingemann and Stulz (2004) find that acquirers' Tobin's q has a negative effect on its abnormal returns. We expect that a higher synergy will be created if the acquirer or target has a higher ROA, since ROA is a proxy for firm's profitability, which reflects managerial ability. ROA is defined as EBIT divided by total asset.

Deal characteristics include relative deal value, attitude and payment method of the acquisition, whether the acquisition is a tender offer and whether it is a diversifying merger. Evidence is found in Asquith, Bruner and Mullins (1983) that relative size of the two parts contributes to explain acquirer announcement returns. We use the ratio of deal value to acquirers' market value as a proxy for relative size. Market value is defined as the sum of value of equity, long term debt, debt in current liabilities and the liquidating value of preferred stock. As for the attitude of acquisition, it's reasonable to assume that the acquirer benefit more in a friendly takeover and less in a hostile takeover. This is especially important when we think of the utilization of targets' organizational capital. In a hostile acquisition, targets' management team might be replaced which would lead to a loss of organizational capital. We expect that higher acquirer abnormal returns are attained through cash payment, because equity payment signals to the market that acquirers' stock is overvalued. Though this signal has nothing to do with the synergy effect of the acquisition, acquirers' information is picked up by the market through the payment method, which negatively affects acquirers' post-merger returns. This is confirmed by many papers such as Wansley, Lane and Yang (1983), Sudarsanam and Mahate (2003) and Bouwman, Fuller and Nain (2009).

We know that the closer the acquirers' and targets' businesses are, the more synergy effect the merger creates. Both Moeller, Schlingemann and Stulz (2004) and Masulis, Wang and Xie (2007) find that acquirers of non-diversifying acquisitions benefit more in terms of announcement abnormal returns. Based on this, we ask, do acquirers benefit more from targets' organizational capital if they are in the same industry? So we include "diversifying" as a control variable in our model. If the acquirers and targets are from the same industry, following Fama and French (1988), the acquisition is considered as non-diversifying.



After constructing all the test and control variables and deleting all the missing values, we get a sample consisting of 1654 mergers.

[Insert Table B.1 here]

Table B.1 presents the sample distribution by announcement year. Year 1984 has the lowest number (10) of acquisitions in our sample. Starting from 1989, the number of acquisitions decreases and reaches to 22 in 1992, from when it starts increasing significantly in the following years until it reaches its peak in 1998. Year 1997, 1998 and 1999 have the most acquisitions, consisting 22% of our total sample. Then the number of acquisitions steadily decreases to 25 in 2013. Table B.1 also reports the means of acquirers' announcement abnormal returns (CAR11) and targets' organizational capital prior to announcement in each year. The lowest mean CAR11 happens in 1991 (-0.0485), which is consistent with the recession in early 1990s. And highest mean CAR11 appears in 2013 (0.0380). The average target organizational capital is 0.2744.

[Insert Table B.2 here]

Table B.2 shows all the variables' statistic properties of our sample. The mean of the dependent variable CAR11 is around negative 2% and the average organizational capital for all the target companies is 0.27 with a standard deviation of 1.38. For comparison, Eisfeldt and Papanikolaou (2013) report a mean of organizational capital as 0.27 for its low organizational quintile and 2.71 for its high organizational capital quintile, while Li, Qiu and Shen (2016) document the mean of acquirers' organizational capital of 0.97, with a standard deviation of 1.05. Difference might come from the size of the firms, since Li Qiu and Shen (2016) focused on acquirers' organizational capital which are usually a lot larger than targets.

Before making acquisitions, the acquirers have an average ROA of 9%, which is a lot higher than the targets' (4%). The market to book means of acquirers and targets are 3.71 and 3.08. And they have a leverage mean of 0.22 and 0.21 respectively. Forty-nine percentage of our target companies are considered as companies with high level of organizational capital (higher than sample median). And the proportions for hostile takeovers, all-cash payment mergers and tender offer mergers are 3%, 44% and 30% respectively.

Then we examine the correlations among the independent variables, results of which are shown in Table B.3. Multicollinearity is not a concern for our sample. We noticed that the correlations

between firm size and OC for both acquirers and targets are negative (-0.19 and -0.25). Since our OC is size adjusted (scaled by book assets), this results mean, smaller firms tend to have higher proportion of organizational capital stock, which is consistent with the finding of Eisfeldt and Papanikolaou (2013). Another interesting finding is the correlations between OC and ROA, which is also negative for both of the acquirers and targets. This is contradictive with the finding of Eisfeldt and Papanikolaou (2013), who document a positive relationship between organizational capital and firm profitability. But Li, Qiu and Shen (2016) also document these same negative correlations in their sample.

[Insert Table B.3 here]

## 4. Results

### 4.1. Univariate Test

We employ an univariate test by sorting the sample into 2 groups based on targets' organizational capital and comparing the CAR11s for the 2 subsamples. Results are shown in Table B.4.

[Insert Table B.4 here]

A firm is classified as a high organizational capital firm if its OC is no smaller than -0.0221 (sample median). 810 target firms are classified as high organizational group, while 844 target firms are recognized as low organizational firms. The CAR11 mean for the high organizational capital group (High OC) is -0.83% while the CAR11 mean for the low organizational capital group (Low OC) is -2.56% which is a lot smaller than the high group, economically. The t value for the difference of the two CAR11s is 3.3, which shows that the two means are statistically significant. The univariate test result shows us that acquirers experience higher post-merger abnormal returns when the targets have a higher organizational capital.

### 4.2. Main Regression

Now we move on to formally test the effect of targets' organizational capital on the acquisition announcement abnormal returns of the acquirer using an ordinary least square (OLS) regression. The model is as following:

$$\begin{aligned} \text{CAR11} = & b_0 + b_1 \text{OC} + b_2 \text{size} + b_3 \text{mtob} + b_4 \text{leverage} + b_5 \text{roa} + b_6 \text{size}_{\text{target}} + b_7 \text{mtob}_{\text{target}} + b_8 \text{leverage}_{\text{target}} \\ & + b_9 \text{roa}_{\text{target}} + b_{10} \text{relative dealvalue} + b_{11} \text{hostile} + b_{12} \text{allcash} + b_{13} \text{tender offer} + b_{14} \text{diversifying} \end{aligned} \quad (4)$$

Whereas OC is the key variable we are testing, size, mtob, leverage and roa are acquirers' characteristics. size<sub>target</sub>, mtob<sub>target</sub>, leverage<sub>target</sub> and roa<sub>target</sub> are targets' characteristics, while the rest of the independent variables are deal characteristics. We control for industry effect and year effect and acquirer cluster in the regression. Results are shown in Table B.5.

[Insert Table B.5 here]

We control for fixed industry effect and year effect and use acquirer cluster in our regression. Column (1) is the regression results using continuous OC data and column (2) is the results using

OC as a dummy variable. From Table B.5, both coefficients continuous OC variable and dummy OC variable are significantly positive, which means targets' organizational capital has a positive effect on acquirers' announcement abnormal returns. To be specific, the average of acquirers' announcement abnormal returns is about 0.055% higher if the average of targets' organizational capital is 10 percentage points higher. And the high OC group experience 1.38% higher announcement abnormal returns than the low OC group, on average.

As for the control variables, most of our results are consistent with the literature except "acquirer size" and "relative dealvalue", but they make sense taking the properties of organizational capital into account. According to Moeller, Schlingemann and Stulz (2004), small acquirers outperform large acquirers in terms of announcement returns, although Wright, Kroll and Elenkov (2002) find that acquisition returns increase in firm size. Our result is consistent with the latter, although both acquirer size and relative dealvalue are insignificant. The explanation is that larger acquirers might be able to take more advantage of and utilize targets' organizational capital, thus gaining a higher return. It's the same case with the "relative dealvalue" variable.

### **4.3. Robustness Tests**

In this section, we test whether our results keep the same using other acquirer abnormal return proxies. First, we use CAR3 and CAR5 as dependent variables. CAR3 denotes CAR (-1, +1), which stands for 3-days cumulative abnormal returns (from 1 day before the event day to 1 day after the event day). CAR5 is CAR (-2, +2), which stands for 5-days cumulative abnormal returns (from 2 days before the event day to 2 days after the event day). Estimation windows are from day -205 to day -6, and from day -210 to day -8, respectively following Moeller, Schlingemann and Stulz (2004) and Masulis, Wang and Xie (2007). Same with CAR11, both CAR3 and CAR5 are attained directly from WRDs Event Study. Results are shown in Table B.6, from which we see that both continuous OC variable and dummy OC variable are significantly positive, except CAR3 with continuous OC. One interesting observation is that the adjusted R-squared increase, using CAR3 and CAR5.

[Insert Table B.6 here]

Then we use buy and hold abnormal returns (BHAR3, BHAR5 and BHAR11) to do the robustness test, the conclusions stay the same. All of the regressions except BHAR3 with continuous OC are significant. Adjusted R-squared increase, compared with the main regression. Results are presented in Table B.7.

[Insert Table B.7 here]

Further, we also perform a robustness test on the depreciation rate of OC. The results show that our results stay significant for  $\delta$  between 5% and 40%. The results are shown in Table B.8.

[Insert Table B.8 here]

## 5. Does Diversifying Merger Matter?

In order to test hypothesis 2, we classify the samples based on whether they are diversifying acquisitions or non-diversifying acquisitions. There are 558 diversifying mergers and 1143 non-diversifying mergers in our sample. The results are shown in Table B.9. The OC coefficients are small and non-significant in the diversifying mergers, which means, acquirers cannot benefit from targets' organizational capital if they operate in two industries, while the effect of organizational capital is significant under 90% significance level. But the interesting point is the t value of the non-diversifying subsample is smaller than the results in the full sample, which is contra-intuitive. But this might result from the smaller sample size. The adjusted R-squared also increase in the non-diversifying sample.

[Insert Table B.9 here]

On the other hand, we also test this hypothesis by adding an interaction variable of “diversifying” and “OC” to the main regression. We call this interaction variable “diversify\_oc”, which stands for the effect of “diversifying” on the effect of “OC”. However, the results don't show any significance of this variable (t values are 0.232 and 0.522 for two regressions), which are shown in Table B.10.

[Insert Table B.10 here]

Two tests results are not consistent with each other, so this is a question which needs further discussion and test.

## 6. Does Corporate Governance Matter?

Following Gompers, Metrick and Ishii (2003), Masulis, Wang and Xie (2007), Wang and Xie (2009) and Bebchuk, Cohen and Ferrell (2009), we use total institutional ownership, G-index and E-index as proxies for corporate governance. And test whether the positive effect of targets' organizational capital defers in stronger and weaker acquirer corporate governance. Results are shown in Table B.11 to Table B.13. In table B.11, "High\_ownership" is the sample of firms with higher institutional ownership, which means higher shareholder rights and better corporate governance. The OC coefficient for "High\_ownership" is 0.0079 with a t value of 2.689, a lot higher than the ones in main regression, while the OC coefficient for "Low\_ownership" subsample is 0.0044 with a t value of 1.165. In tables B.12 and B.13, "Low\_Gindex" and "Low\_Eindex" are the subsamples with better corporate governance. All 3 tables show that organizational capital's positive effect on acquirers' abnormal returns is more significant both economically and statistically, when acquirers have better corporate governance.

[Insert Table B.11 here]

[Insert Table B.12 here]

[Insert Table B.13 here]

Table B.14 represents the results testing acquirers' governance in non-diversifying acquisitions, from which we can see that the acquirers benefit the most from targets' organizational capital when the merger is non-diversifying and when acquirers have better corporate governance. However, the coefficients of the continuous OC variable in the non-diversifying merger with low acquirer corporate governance become extremely insignificant (0.0006 with t-values of 0.177), which means when acquirers' corporate governance is weak, even if it's a non-diversifying merger, the acquirer still cannot benefit from targets' organizational capital.

[Insert Table B.14 here]

## **7. Conclusions**

In this paper, we examine whether targets' organizational capital has a positive effect on acquirers' post-merger abnormal returns. Using a perpetual inventory method, we calculate organizational capital from SG&A expenses and get a sample consisting of 1654 U.S. domestic M&A transactions. OLS regression results show that acquirers experience higher announcement abnormal returns when the targets have higher organizational capital, which means the market thinks that the acquirers can make use of the targets' organizational capital by learning from the targets' special processes and systems and etc. We also find that the positive relation between targets' organizational capital and acquirers' abnormal returns gets stronger and more significant when the acquirers and targets are in the same industry and when acquirers have better corporate governance.

Future research is called for to examine whether there is a relation between corporate governance and organizational capital stock as well as how the organizational capital stock difference of acquirers and targets affects acquirers' returns.



## REFERENCES

- Prescott, Edward C., and Michael Visscher. "Organization capital." *The Journal of Political Economy* (1980): 446-461.
- Lev, Baruch, and Suresh Radhakrishnan. "The valuation of organization capital." *Measuring capital in the new economy*. University of Chicago Press, 2005. 73-110.
- Lev, Baruch, Suresh Radhakrishnan, and Weining Zhang. "Organization capital." *Abacus* 45.3 (2009): 275-298.
- Atkeson, Andrew, and Patrick J. Kehoe. *Measuring organization capital*. No. w8722. National Bureau of Economic Research, 2002.
- Jovanovic, Boyan. "Firm-specific capital and turnover." *The Journal of Political Economy* (1979): 1246-1260.
- Becker, Gary. "Human Capital: A theoretical and empirical approach with special references to education." Chicago: University of Chicago (1993).
- Jovanovic, Boyan, and Robert Moffitt. *An estimate of a sectoral model of labor mobility*. No. w3227. National Bureau of Economic Research, 1990.
- Arrow, Kenneth. "Economic welfare and the allorganizational capitalation of resources for invention." *The rate and direction of inventive activity: Economic and sorganizational capitalial factors*. Princeton University Press, 1962. 609-626.
- Rosen, Sherwin. "Learning and experience in the labor market." *Journal of Human Resources* (1972): 326-342.
- Ericson, Richard, and Ariel Pakes. "Markov-perfect industry dynamics: A framework for empirical work." *The Review of Economic Studies* 62.1 (1995): 53-82.
- Eisfeldt, Andrea L., and Dimitris Papanikolaou. "Organization capital and the cross-section of expected returns." *The Journal of Finance* 68.4 (2013): 1365-1406.
- Jovanovic, Boyan, and Peter L. Rousseau. *Mergers as reallocation*. No. w9279. National Bureau of Economic Research, 2002.

Faria, Andre L. "Mergers and the market for organization capital." *Journal of Economic Theory* 138.1 (2008): 71-100.

Li, Kai, Buhui Qiu, and Rui Shen. "Organization capital and mergers and acquisitions." Available at SSRN 2511675 (2014).

Atkeson, Andrew, and Patrick J. Kehoe. "Modeling and measuring organization capital." *Journal of Political Economy* 113.5 (2005): 1026-1053.

De, Supriyo, and Dilip Dutta. "Impact of intangible capital on productivity and growth: Lessons from the Indian information technology software industry." *Economic Record* 83.s1 (2007): S73-S86.

Tronconi, Claudia, and Giuseppe Vittucci Marzetti. "Organization capital and firm performance. Empirical evidence for European firms." *Economics Letters* 112.2 (2011): 141-143.

Lustig, Hanno, Chad Syverson, and Stijn Van Nieuwerburgh. "Technological change and the growing inequality in managerial compensation." *Journal of Financial Economics* 99.3 (2011): 601-627.

Carlin, Bruce Ian, Bhagwan Chowdhry, and Mark J. Garmaise. "Investment in organization capital." *Journal of Financial Intermediation* 21.2 (2012): 268-286.

Evenson, Robert E., and Larry E. Westphal. "Technological change and technology strategy." *Handbook of development economics* 3 (1995): 2209-2299.

Youndt, Mark A., Mohan Subramaniam, and Scott A. Snell. "Intellectual capital profiles: An examination of investments and returns." *Journal of Management studies* 41.2 (2004): 335-361.

Core, John E., Robert W. Holthausen, and David F. Larcker. "Corporate governance, chief executive officer compensation, and firm performance." *Journal of financial economics* 51.3 (1999): 371-406.

Gompers, Paul A., Joy L. Ishii, and Andrew Metrick. *Corporate governance and equity prices*. No. w8449. National bureau of economic research, 2001.

Bebchuk, Lucian, Alma Cohen, and Allen Ferrell. "What matters in corporate governance?." *Review of Financial studies* 22.2 (2009): 783-827.

Bebchuk, Lucian A., and Alma Cohen. "The costs of entrenched boards." *Journal of Financial Economics* 78.2 (2005): 409-433.

Drobetz, Wolfgang, Andreas Schillhofer, and Heinz Zimmermann. "Corporate governance and expected stock returns: Evidence from Germany." *European financial management* 10.2 (2004): 267-293.

Moeller, Sara B., Frederik P. Schlingemann, and René M. Stulz. "Firm size and the gains from acquisitions." *Journal of Financial Economics* 73.2 (2004): 201-228.

Masulis, Ronald W., Cong Wang, and Fei Xie. "Corporate governance and acquirer returns." *The Journal of Finance* 62.4 (2007): 1851-1889.

Wright, Peter, Mark Kroll, and Detelin Elenkov. "Acquisition returns, increase in firm size, and chief executive officer compensation: The moderating role of monitoring." *Academy of Management Journal* 45.3 (2002): 599-608.

Maloney, Michael T., Robert E. McCormick, and Mark L. Mitchell. "Managerial decision making and capital structure." *Journal of Business* (1993): 189-217.

Servaes, Henri. "Tobin's Q and the Gains from Takeovers." *The Journal of Finance* 46.1 (1991): 409-419.

Lang, Larry HP, RenéM Stulz, and Ralph A. Walkling. "Managerial performance, Tobin's Q, and the gains from successful tender offers." *Journal of financial Economics* 24.1 (1989): 137-154.

Asquith, Paul, Robert F. Bruner, and David W. Mullins. "The gains to bidding firms from merger." *Journal of Financial Economics* 11.1 (1983): 121-139.

Wansley, James W., William R. Lane, and Ho C. Yang. "Abnormal returns to acquired firms by type of acquisition and method of payment." *Financial management* (1983): 16-22.

Sudarsanam, Sudi, and Ashraf A. Mahate. "Glamour acquirers, method of payment and post-acquisition performance: the UK evidence." *Journal of Business Finance & Accounting* 30.1-2 (2003): 299-342.

Bouwman, Christa HS, Kathleen Fuller, and Amrita S. Nain. "Market valuation and acquisition quality: Empirical evidence." *Review of Financial Studies* 22.2 (2009): 633-679.

Fama, Eugene F., and Kenneth R. French. "Dividend yields and expected stock returns." *Journal of financial economics* 22.1 (1988): 3-25.

Wang, Cong, and Fei Xie. "Corporate governance transfer and synergistic gains from mergers and acquisitions." *Review of Financial Studies* 22.2 (2009): 829-858.

Gompers, Paul A., Andrew Metrick, and Joy L. Ishii. "IRRC Governance Data IRRC--Corporate Governance and Directors Datasets." *The Quarterly Journal of Economics* 118 (2003): 1.

## APPENDIX A: VARIABLE DEFINITIONS AND SOURCES

<b>Variables</b>	<b>Definition</b>	<b>Source</b>
<b>OC</b>	Cumulate SG&A expenses (adjusted by cpi) using perpetual inventory method	Computed by author based on Compustat data
<b>High OC Dummy</b>	dummy variable. Equals 1 if target OC is higher than sample median, otherwise equals 0	Computed by author based on Compustat data
<b>acquirer OC</b>	Cumulate SG&A expenses (adjusted by cpi) using perpetual inventory method	Computed by author based on Compustat data
<b>acquirer size</b>	log (acquirer asset)	Computed by author based on Compustat data
<b>acquirer mtob</b>	acquirer market value to book value of common equity	Computed by author based on Compustat data
<b>acquirer leverage</b>	acquirer (long-term debt+ debt in current liabilities)/asset	Computed by author based on Compustat data
<b>acquirer roa</b>	acquirer EBIT/asset	Computed by author based on Compustat data
<b>target size</b>	log (target asset)	Computed by author based on Compustat data
<b>target mtob</b>	target market value to book value of common equity	Computed by author based on Compustat data
<b>target leverage</b>	target (long-term debt+ debt in current liabilities)/asset	Computed by author based on Compustat data
<b>target roa</b>	target EBIT/asset	Computed by author based on Compustat data
<b>relative dealvalue</b>	deal value/acquirer market value. Market value is defined as the sum of market value of common stock, long-term debt, debt in current liabilities and liquidating value of preferred stock	Computed by author based on Compustat data and SDC Platform data
<b>hostile</b>	dummy variable. Equals 1 if the merger is hostile; otherwise equals 0	SDC Platform
<b>allcash</b>	dummy variable. Equals 1 if the payment is paid by cash; otherwise equals 0	SDC Platform
<b>tender offer</b>	dummy variable. Equals 1 if the merger is a tender offer; otherwise equals 0	SDC Platform
<b>diversifying</b>	dummy variable. Equals 1 if the acquirer and target are in different	

## APENDIX B: TABLES

**Table B.1: Sample Distribution by Announcement Year**

Year	N	CAR11	OC
1984	10	0.0142	0.4051
1985	45	-0.0133	0.0722
1986	49	0.0065	0.3442
1987	41	-0.0286	-0.2985
1988	48	-0.0043	0.5505
1989	30	-0.0237	0.2345
1990	25	-0.0009	0.3489
1991	25	-0.0485	0.5080
1992	22	-0.0445	-0.1067
1993	30	-0.0371	0.2419
1994	59	-0.0030	0.0713
1995	78	-0.0205	0.3703
1996	81	-0.0141	0.0778
1997	108	-0.0195	0.2021
1998	132	-0.0352	0.1401
1999	123	-0.0158	0.2066
2000	90	-0.0232	0.2159
2001	75	-0.0165	0.3977
2002	51	-0.0010	0.4922
2003	60	-0.0101	0.6480
2004	64	-0.0450	0.4315
2005	71	-0.0270	0.5161
2006	60	-0.0213	0.1470
2007	60	0.0015	0.2727
2008	39	-0.0310	0.2644
2009	45	-0.0249	0.5666
2010	46	0.0001	0.3199
2011	27	-0.0194	0.2201
2012	35	0.0195	0.3119
2013	25	0.0380	0.2790
Total/Average	1654	-0.0171	0.2744

This table represents the average of the key explained variable and explaining variable by year for a sample of US. domestic M&As from 1985 to 2013. OC refers to target organizational capital stock (scaled by asset less the industry median). The variables are estimated as of the fiscal year prior to the announcement day.

**Table B.2: Statistical Properties of Key Variables**

<b>Variables</b>	<b>Mean</b>	<b>STDEV</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>N</b>
<b>CAR11</b>	-0.02	0.11	-0.07	-0.01	0.04	1654
<b>OC</b>	0.27	1.38	-0.56	-0.02	0.71	1654
<b>High OC Dummy</b>	0.49	0.50	0.00	0.00	1.00	1654
<b>acquirer OC</b>	-0.04	1.12	-0.69	-0.19	0.30	1654
<b>acquirer size</b>	7.33	1.88	6.07	7.35	8.63	1654
<b>acquirer mtob</b>	3.71	4.04	1.68	2.52	4.05	1654
<b>acquirer leverage</b>	0.22	0.17	0.08	0.20	0.32	1654
<b>acquirer roa</b>	0.09	0.12	0.06	0.10	0.15	1654
<b>target size</b>	5.50	1.74	4.26	5.34	6.60	1654
<b>target mtob</b>	3.08	4.02	1.29	2.00	3.30	1654
<b>target leverage</b>	0.21	0.19	0.02	0.18	0.34	1654
<b>target roa</b>	0.04	0.18	0.02	0.08	0.12	1654
<b>relative dealvalue</b>	0.37	0.53	0.07	0.18	0.48	1654
<b>hostile</b>	0.03	0.18	0.00	0.00	0.00	1654
<b>allcash</b>	0.44	0.50	0.00	0.00	1.00	1654
<b>tender offer</b>	0.30	0.46	0.00	0.00	1.00	1654
<b>diversifying</b>	0.33	0.47	0.00	0.00	1.00	1654

This table presents the statistical properties for the key variables used in this paper for the sample of US. domestic M&As from 1984 to 2013. OC refers to target organizational capital stock (scaled by asset less the industry median). The variables are estimated as of the fiscal year prior to the announcement day.

**Table B.3: Correlation Coefficients**

Variables	CAR11	OC	acquirer OC	acquirer size	acquirer mtob	acquirer leverage	acquirer roa	target size	target mtob	target leverage	target roa	relative dealvalue	hostile	allcash	tender offer
<b>OC</b>	0.08	1.00	0.34	-0.19	-0.01	-0.15	-0.07	-0.25	0.05	-0.19	-0.20	-0.03	0.07	0.11	0.07
<b>acquirer OC</b>	0.01	0.34	1.00	-0.19	0.07	-0.24	-0.10	-0.12	-0.01	-0.09	-0.14	0.09	0.01	0.00	0.00
<b>acquirer size</b>	0.02	-0.19	-0.19	1.00	0.02	0.14	0.25	0.66	0.14	0.14	0.24	-0.30	0.00	0.19	0.06
<b>acquirer mtob</b>	-0.10	-0.01	0.07	0.02	1.00	0.07	0.12	0.03	0.19	-0.09	-0.02	-0.03	-0.03	-0.12	-0.12
<b>acquirer leverage</b>	0.01	-0.15	-0.24	0.14	0.07	1.00	-0.01	0.21	-0.04	0.36	0.15	0.09	0.05	-0.03	-0.01
<b>acquirer roa</b>	-0.04	-0.07	-0.10	0.25	0.12	-0.01	1.00	0.12	0.04	-0.02	0.35	-0.14	0.03	0.16	0.11
<b>target size</b>	-0.04	-0.25	-0.12	0.66	0.03	0.21	0.12	1.00	0.05	0.35	0.27	0.23	0.10	-0.07	-0.04
<b>target mtob</b>	-0.09	0.05	-0.01	0.14	0.19	-0.04	0.04	0.05	1.00	0.15	0.01	0.01	-0.02	-0.10	-0.08
<b>target leverage</b>	0.02	-0.19	-0.09	0.14	-0.09	0.36	-0.02	0.35	0.15	1.00	0.11	0.12	0.03	-0.08	-0.05
<b>target roa</b>	-0.02	-0.20	-0.14	0.24	-0.02	0.15	0.35	0.27	0.01	0.11	1.00	0.06	0.06	0.06	0.07
<b>relative dealvalue</b>	-0.05	-0.03	0.09	-0.30	-0.03	0.09	-0.14	0.23	0.01	0.12	0.06	1.00	0.13	-0.20	-0.08
<b>hostile</b>	-0.01	0.07	0.01	0.00	-0.03	0.05	0.03	0.10	-0.02	0.03	0.06	0.13	1.00	0.12	0.23
<b>allcash</b>	0.18	0.11	0.00	0.19	-0.12	-0.03	0.16	-0.07	-0.10	-0.08	0.06	-0.20	0.12	1.00	0.54
<b>tender offer</b>	0.14	0.07	0.00	0.06	-0.12	-0.01	0.11	-0.04	-0.08	-0.05	0.07	-0.08	0.23	0.54	1.00
<b>diversifying</b>	0.01	0.01	0.00	0.05	-0.04	0.04	-0.02	-0.09	-0.02	-0.01	0.04	-0.09	0.07	0.09	0.11

This table presents variable correlation coefficients for the sample of US. Domestic M&As from 1984 to 2013. OC refers to target organizational capital stock scaled by asset less the industry median. "Relative dealvalue" is the ratio of deal value of acquirer's market value. "Hostile", "allcash", "tender offer" and "diversifying" are dummy variables. The variables are estimated as of the fiscal year prior to the announcement day.

**Table B.4: Univariate Test**

Dependent Variable	Test Variable	Mean	STDEV	N	Difference (TSTAT)
<b>CAR11</b>	High OC	-0.008308	0.112940	810	0.0173
	Low OC	-0.025634	0.100156	844	3.2960

This table represents univariate test on target organizational capital for a sample of US. domestic M&As from 1984 to 2013. The sample includes 1654 completed mergers. A firm is classified as high organizational capital firm if its OC  $\geq$  sample median. The result shows that the difference between high OC group and low OC group is significant.



**Table B.5: Main Regression**

**Acquirer Announcement Returns and Target Organizational Capital Stock**

Variables	(1) CAR11	(2) CAR11
OC	0.0055** (2.121)	
High OC Dummy		0.0138** (2.479)
acquirer OC	-0.0009 (-0.329)	-0.0002 (-0.058)
acquirer size	0.0040 (1.451)	0.0037 (1.342)
acquirer mtob	-0.0014 (-1.234)	-0.0015 (-1.285)
acquirer leverage	0.0040 (0.175)	0.0050 (0.220)
acquirer roa	-0.0561 (-0.562)	-0.0541 (-0.543)
target size	-0.0056** (-2.039)	-0.0057** (-2.057)
target mtob	-0.0019** (-2.338)	-0.0018** (-2.256)
target leverage	0.0373* (1.933)	0.0381** (1.984)
target roa	0.0005 (0.020)	-0.0039 (-0.170)
relative dealvalue	-0.0006 (-0.078)	-0.0003 (-0.040)
hostile	-0.0169 (-1.570)	-0.0144 (-1.344)
allcash	0.0222*** (3.199)	0.0229*** (3.345)
tender offer	0.0182*** (2.869)	0.0175*** (2.752)
diversifying	-0.0074 (-1.281)	-0.0067 (-1.149)
Constant	-0.0161 (-0.737)	-0.0206 (-0.939)
Industry Effect	Yes	Yes
Year Effect	Yes	Yes
Cluster (Acquirer)	Yes	Yes
Observations	1,654	1,654
Adjusted R-squared	0.049	0.049

This table shows the results of OLS regression of acquirer's CAR11 (11 days of cumulative abnormal returns around the announcement day) on OC (target's organizational capital stock) and High OC Dummy. OC is scaled by asset and adjusted for industry level, thus it is a percentage of book asset. High OC Dummy is the part of sample which is higher than median of OC of the sample.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B.6: Robustness Test 1****Acquirer CAR3 and CAR5 and Target Organizational Capital**

Variables	(1) CAR3	(2) CAR5	(3) CAR3	(4) CAR5
OC	0.0024 (1.642)	0.0039** (2.238)		
High OC Dummy			0.0088** (2.257)	0.0109** (2.525)
Control Variables	Yes	Yes	Yes	Yes
Constant	-0.0153 (-1.223)	-0.0223 (-1.355)	-0.0194 (-1.541)	-0.0264 (-1.601)
Industry Effect	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes
Observations	1,654	1,654	1,654	1,654
Adjusted R-squared	0.079	0.066	0.081	0.066

This table shows the robustness test results using acquirer CAR3 and CAR5. CAR3 is CAR (-1, +1), which is 3-days cumulative abnormal returns around the announcement day. CAR5 is CAR (-2, +2), which is 5-days cumulative abnormal returns around the announcement day. All else are the same with the main regression.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B.7: Robustness Test 2****Acquirer BHAR3, BHAR5, BHAR11 and Target Organizational Capital**

Variables	(1) BHAR3	(2) BHAR5	(3) BHAR11	(4) BHAR3	(5) BHAR5	(6) BHAR11
OC	0.0023 (1.626)	0.0037** (2.235)	0.0056** (2.077)			
High OC Dummy				0.0092** (2.346)	0.0109** (2.525)	0.0141** (2.552)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.0157 (-1.253)	-0.0230 (-1.372)	-0.0167 (-0.748)	-0.0201 (-1.597)	-0.0273 (-1.632)	-0.0214 (-0.953)
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,654	1,654	1,654	1,654	1,654	1,654
Adjusted R-squared	0.081	0.068	0.051	0.082	0.069	0.051

This table shows the robustness test results using acquirer BHAR3, BHAR5 and BHAR11. BHAR3 (BHAR5 and BHAR11) is acquirer buy and hold abnormal 3 (5 and 11) days returns around announcement day. All else are the same with the main regression.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B.8: Robustness Test 3

Acquirer CAR11 and Different Depreciation rates of Target Organizational Capital

	delta=5%		delta=10%		delta=15%		delta=20%		delta=25%		delta=30%		delta=35%		delta=40%	
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11	CAR11
<b>OC</b>	0.0055*		0.0055*		0.0055*		0.0055*		0.0055*		0.0055*		0.0055*		0.0055*	
	*		*		*		*		*		*		*		*	
	(2.105)		(2.129)		(2.121)		(2.115)		(2.115)		(2.115)		(2.113)		(2.110)	
<b>High OC Dummy</b>		0.0147**		0.0138*		0.0138*		0.0144**		0.0144**		0.0147**		0.0147**		0.0147**
		*		*		*		*		*		*		*		*
		(2.644)		(2.487)		(2.479)		(2.595)		(2.593)		(2.647)		(2.646)		(2.645)
<b>Control Variables</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Constant</b>	-0.0161	-0.0215	-0.0160	-0.0206	-0.0161	-0.0206	-0.0161	-0.0212	-0.0161	-0.0212	-0.0161	-0.0215	-0.0161	-0.0215	-0.0161	-0.0215
	(-0.740)	(-0.979)	(-0.736)	(-0.940)	(-0.737)	(-0.939)	(-0.737)	(-0.967)	(-0.737)	(-0.967)	(-0.739)	(-0.979)	(-0.739)	(-0.979)	(-0.739)	(-0.979)
<b>Industry Effect</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Year Effect</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Cluster(Acquirer)</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Observations</b>	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654	1,654
<b>Adjusted R-squared</b>	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049

This Table presents the robustness test results of different depreciation rates of target organizational capital. Results show that our model stays significant when the depreciation rate of organizational capital is between 5% to 40%.

Robust t-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \*

p&lt;0.1

Table B.9: Subsample Test 1

**Whether Diversifying Merger Matters to Target Organizational Capital's Effect on Acquirer CAR11**

Variables	Non-diversifying		Diversifying	
	(1) CAR11	(2) CAR11	(3) CAR11	(4) CAR11
OC	0.0044* (1.808)		0.0045 (0.863)	
High OC Dummy		0.0179** (2.533)		0.0003 (0.030)
acquirer OC	-0.0006 (-0.202)	-0.0007 (-0.239)	-0.0022 (-0.360)	-0.0006 (-0.095)
acquirer size	0.0065* (1.928)	0.0061* (1.789)	0.0016 (0.359)	0.0012 (0.268)
acquirer mtob	-0.0027** (-2.250)	-0.0027** (-2.282)	0.0026 (0.980)	0.0026 (0.957)
acquirer leverage	-0.0018 (-0.067)	-0.0004 (-0.017)	0.0137 (0.350)	0.0176 (0.464)
acquirer roa	-0.0865 (-0.700)	-0.0842 (-0.682)	0.0516 (0.823)	0.0568 (0.899)
target size	-0.0078** (-2.193)	-0.0074** (-2.067)	-0.0035 (-0.703)	-0.0040 (-0.814)
target mtob	-0.0016* (-1.663)	-0.0015 (-1.590)	-0.0017 (-1.121)	-0.0014 (-0.981)
target leverage	0.0365 (1.486)	0.0399 (1.600)	0.0056 (0.208)	0.0031 (0.118)
target roa	0.0098 (0.379)	0.0072 (0.277)	-0.0264 (-0.726)	-0.0356 (-0.983)
relative dealvalue	0.0002 (0.029)	0.0006 (0.073)	-0.0066 (-0.405)	-0.0071 (-0.429)
Hostile	-0.0218 (-1.365)	-0.0201 (-1.251)	-0.0059 (-0.336)	-0.0025 (-0.140)
allcash	0.0274*** (3.246)	0.0277*** (3.308)	0.0059 (0.525)	0.0071 (0.636)
tender offer	0.0220*** (2.744)	0.0211*** (2.630)	0.0080 (0.730)	0.0079 (0.716)
Constant	-0.0286 (-1.259)	-0.0360 (-1.573)	-0.0120 (-0.283)	-0.0052 (-0.118)
Industry Effect	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes
Observations	1,113	1,113	541	541
Adjusted R-squared	0.084	0.087	0.013	0.010

This table shows the results of testing hypothesis 2 on two subsamples: Non-diversifying mergers and Diversifying mergers. A merger is defined as a diversifying merger when the target and acquirer are from different industries. We have 1113 non-diversifying mergers and 541 diversifying mergers in our sample.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B.10: Subsample Test 2**  
**Whether Diversifying Merger Matters to Target Organizational Capital's Effect on Acquirer CAR11**

Variables	(1) CAR11	(2) CAR11
OC	0.0050** (2.097)	
High OC Dummy		0.0119* (1.847)
acquirer OC	-0.0009 (-0.321)	-0.0003 (-0.123)
acquirer size	0.0040 (1.469)	0.0038 (1.401)
acquirer mtob	-0.0014 (-1.247)	-0.0015 (-1.287)
acquirer leverage	0.0037 (0.161)	0.0041 (0.180)
acquirer roa	-0.0564 (-0.564)	-0.0550 (-0.552)
target size	-0.0056** (-2.042)	-0.0057** (-2.057)
target mtob	-0.0019** (-2.324)	-0.0018** (-2.246)
target leverage	0.0371* (1.943)	0.0377** (1.978)
target roa	0.0010 (0.046)	-0.0016 (-0.070)
relative dealvalue	-0.0006 (-0.076)	-0.0003 (-0.039)
hostile	-0.0171 (-1.581)	-0.0155 (-1.430)
allcash	0.0222*** (3.201)	0.0228*** (3.302)
tender offer	0.0182*** (2.874)	0.0177*** (2.775)
diversifying	-0.0078 (-1.387)	-0.0077 (-1.369)
diversify_oc	0.0013 (0.232)	0.0032 (0.522)
Constant	-0.0162 (-0.746)	-0.0207 (-0.948)
Industry Effect	Yes	Yes
Year Effect	Yes	Yes
Cluster (Acquirer)	Yes	Yes
Observations	1,654	1,654
Adjusted R-squared	0.049	0.049

This table shows the results of OLS regression of acquirer's CAR11 (11 days of cumulative abnormal returns around the announcement day) on OC (target's organizational capital stock) and High OC Dummy, with a control variable "diversify\_oc", which is the interaction variable of "diversifying" and OC. OC is scaled by asset and adjusted for industry level. High OC Dummy is the part of sample which is higher than median of OC of the sample.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B.11: Subsample Test 3a

Variables	High_ownership		Low_ownership	
	(1) CAR11	(2) CAR11	(3) CAR11	(4) CAR11
OC	0.0079*** (2.689)		0.0044 (1.165)	
High OC Dummy		0.0153** (2.246)		0.0141 (1.507)
Control Variables	Yes	Yes	Yes	Yes
Constant	-0.0754 (-1.245)	-0.0793 (-1.324)	-0.0106 (-0.408)	-0.0159 (-0.604)
Industry Effect	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes
Observations	827	827	827	827
Adjusted R-squared	0.096	0.094	0.032	0.032

This table shows whether corporate governance plays an important role in acquirers' utilizing of the targets' organizational capital. We use total institutional ownership as a proxy for corporate governance. The merger is classified into the "High\_Ownership" group if the acquirer's total institutional ownership is higher than the sample median, otherwise it is in the "Low\_Ownership" group. There are 827 acquisitions in which the acquirers are considered with high institutional ownership (corporate governance) and 827 acquisitions in which acquirers are considered with low institutional ownership.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B.12: Subsample Test 3b

Variables	Low_Gindex		High_Gindex	
	(1) CAR11	(2) CAR11	(3) CAR11	(4) CAR11
OC	0.0076* (1.715)		0.0041 (0.935)	
High OC Dummy		0.0254** (2.405)		0.0086 (1.043)
Control Variables	Yes	Yes	Yes	Yes
Constant	-0.0453 (-1.190)	-0.0563 (-1.522)	0.0069 (0.216)	0.0040 (0.124)
Industry Effect	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes
Observations	382	382	423	423
Adjusted R-squared	0.057	0.068	0.090	0.091

This table shows whether corporate governance plays an important role in acquirers' utilizing of the targets' organizational capital. We use total institutional ownership as a proxy for corporate governance. The merger is classified into the "High\_Gindex" (low corporate governance) group if the acquirer's G\_index is higher than the sample median, otherwise it is in the "Low\_Gindex" (high corporate governance) group. There are 423 acquisitions in which the acquirers are considered with low governance and 382 acquisitions in which acquirers are considered with high governance.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B.13: Subsample Test 3c

Variables	Low_Eindex		High_Gindex	
	(1) CAR11	(2) CAR11	(3) CAR11	(4) CAR11
OC	0.0137** (2.288)		-0.0027 (-0.357)	
High OC Dummy		0.0372*** (2.792)		-0.0073 (-0.527)
Control Variables	Yes	Yes	Yes	Yes
Constant	-0.0575 (-1.317)	-0.0666 (-1.574)	0.0621 (0.908)	0.0664 (0.977)
Industry Effect	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes
Observations	210	210	147	147
Adjusted R-squared	0.204	0.222	0.092	0.094

This table shows whether corporate governance plays an important role in acquirers' utilizing of the targets' organizational capital. We use E\_index as a proxy for corporate governance. The merger is classified into the "High\_Eindex" (low corporate governance) group if the acquirer's E\_index is higher than the sample median, otherwise it is in the "Low\_Eindex" (high corporate governance) group. There are 147 acquisitions in which the acquirers are considered with low governance and 210 acquisitions in which acquirers are considered with high governance.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B.14: Subsample Test 3d

Variables	High_ownership		Low_ownership	
	(1) CAR11	(2) CAR11	(3) CAR11	(4) CAR11
OC	0.0096** (2.562)		0.0006 (0.177)	
High OC Dummy		0.0186** (1.990)		0.0180 (1.545)
Control Variables	Yes	Yes	Yes	Yes
Constant	-0.0114 (-0.351)	-0.0183 (-0.552)	-0.0377 (-1.363)	-0.0479* (-1.684)
Industry Effect	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Cluster (Acquirer)	Yes	Yes	Yes	Yes
Observations	568	568	545	545
Adjusted R-squared	0.121	0.118	0.090	0.094

This table shows whether corporate governance plays an important role in acquirers' utilizing of the targets' organizational capital. We use total institutional ownership as a proxy for corporate governance. Among the non-diversifying acquisitions, the merger is classified into the "High\_Ownership" group if the acquirer's total institutional ownership is higher than the sample median, otherwise it is in the "Low\_Ownership" group. There are 568 non-diversifying acquisitions in which the acquirers are considered with high institutional ownership (corporate governance) and 545 non-diversifying acquisitions in which acquirers are considered with low institutional ownership.

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1